

STATEMENT OF PROFESSIONAL QUALIFICATIONS

ENVIRONMENTAL TECHNOLOGIES FOR THE 21ST CENTURY

WE WANT TO BECOME YOUR TRUSTED REMEDIATION PARTNER

- For over 20 years, PeroxyChem products have been used to successfully treat thousands of sites around the globe. We understand that every site is unique, and our experienced team of environmental professionals can support clients from site assessment, through remedial design, field application best practices, and post-application data evaluation.
- PeroxyChem offers a field-proven portfolio of *in situ* and *ex situ* remedial solutions for the treatment of impacted Groundwater, Soil and Sediment. These award-winning technologies treat a wide range of toxic contaminants through the scientific disciplines of *In Situ* Chemical Reduction (ISCR), *In Situ* Chemical Oxidation (ISCO), Aerobic Bioremediation, Enhanced Reductive Dechlorination (ERD), and Immobilisation / Stabilisation. Compounds successfully treated at full-scale include: Chlorinated Solvents, BTEX, PAHs, Oxygenates, Petroleum Hydrocarbons, Phenols, Chlorobenzenes, Haloalkanes, Pesticides / Herbicides, Heavy Metals, and Energetics.

YOU BENEFIT FROM OUR BUSINESS MODEL

- We are not consultants, yet seek to support environmental consultants, engineers, site owners, regulators and the academic community by helping provide unbiased design and selection of cost-effective remediation strategies.
- PeroxyChem specializes in proven remedial solutions. Our business model is to support a project team by aiding in the design and selection of the most cost-effective remedial solution or strategy without predisposition or bias to the selection of our proprietary technologies. When their application is justified, however, our proven products may provide significant advantages, and then we provide these. We subsequently rely on select consultancies to support joint projects especially from engineering and construction (oversight) perspectives.
- PeroxyChem technical experts specialize in soil microbiology, bioremediation, environmental engineering, remedial design support, hydrogeology, groundwater modeling and project management.

PRODUCTS

The **Klozur**[®] persulfate portfolio consists of several high quality, environmental grade persulfate products used for *in situ* chemical oxidation (ISCO) of contaminants in soil and groundwater. Activated Klozur persulfate creates a multi-radical attack providing greater oxidation power capable of treating common and the most recalcitrant compounds alike. Klozur's stability allows it to be better distributed in the subsurface providing a greater radius of influence and allowing more time to make contact and degrade contaminants. With a variety of activation and delivery methods, the versatility of the Klozur portfolio is unmatched, allowing it to be applied at a wide variety of site conditions.

EHC[®] is a combination of controlled-release carbon plus zero valent iron (ZVI) yields redox potential (Eh; hence EHC or Redox compound) in the -500 to -650 mV range. This Eh is significantly lower than that achieved when using either organic materials (emulsified oils, lactate, molasses, and sugars) or reduced metal alone. Eh potentials in this range facilitate the timely and effective removal of normally recalcitrant chlorinated organics (e.g., CT, PCE) and other persistent compounds (e.g., perchlorate) without the formation of potentially problematic intermediates, such as DCE/VC from the anaerobic degradation of PCE/TCE or CF/DCM from the anaerobic degradation of CT.

EHC[®] Plus is a combination of EHC Reagent plus powdered activated carbon (PAC). This combined remedy approach can be used for the treatment of groundwater and saturated soil impacted by persistent halogenated compounds, including chlorinated solvents, pesticides and organic explosives. EHC Plus is a synergistic mixture that stimulates both abiotic and biotic de-chlorination mechanisms and provides an adsorption pathway to help to achieve low remedial goals for difficult to treat contaminants.

GeoForm[™] Biogeochemical Reagents are engineered to deliver the building blocks needed to promote *in situ* biogeochemical reactions. GeoForm provides a source of sulfate, ferrous iron, electron donors, pH buffer and nutrients to promote mechanisms for dehalogenation via enhanced anaerobic bioremediation, abiotic degradation and the formation of reactive minerals. GeoForm is available in two formulations – a fully soluble formulation for ease of injection and a solid formulation for extended release.

EHC[®] Liquid is a concentrated, buffered, microemulsion of a controlled-release, food-grade carbon, nutrients, and iron designed for on-site dilution with cold water. It is a liquid variant of PeroxyChem's EHC ISCR Reagent and is specially designed for injection via existing wells or hydraulic injection networks for the treatment of a wide range of groundwater contaminants.

ELS[®] is a lecithin-based substrate of food-grade carbon used to enhance anaerobic bioremediation. By creating reducing conditions and serving as an electron donor for dechlorinating bacteria, ELS promotes Enhanced Reductive Dechlorination reactions. ELS is delivered as either a 25% microemulsion or a 100% concentrate, that is cold water soluble and can be applied via existing wells, hydraulic injection networks or direct push technology.

DARAMEND[®] Since the first application in 1996, variations of the technology have been successfully used to treat >20,000,000 tons of soil, sediment and other solid materials. Daramend treats soils containing chlorinated herbicides and pesticides, organic explosive compounds, and chlorinated VOCs (CVOCs) at many sites throughout the world. The Daramend technology is uniquely advantageous because: it can often be applied without excavation; its implementation generates no odors or leachate; and it is typically applied at 1 to 3% (soil mass), so it does not result in soil bulking.

MetaFix[®] reagents are customized formulations of reducing agents, reactive minerals, mineral activators, catalysts and pH modifiers to cost effectively address heavy metals at even the most challenging sites. MetaFix is capable of treating comingled plumes of multiple heavy metals and chlorinated solvents.

TERRAMEND[®] is an aerobic bioremediation reagent for cost effective treatment technology for soils impacted by organic compounds. The Terramend technology is advantageous because it can often be applied without excavation, generates no odors or leachate, and does not result in soil bulking (1-3% soil mass application rates typical).

PERMEOX[®] Ultra is a specially formulated grade of engineered calcium peroxide providing extended oxygen release for enhanced aerobic bioremediation. Containing at least 18% Active Oxygen, PermeOx Ultra is available in a powdered and granular form. Studies have shown that PermeOx Ultra releases more oxygen into the subsurface environment over extended periods as compared to other soil remediation products. PermeOx Ultra can continually release oxygen for over 350 days, thus providing a useful and cost-effective tool for enhancing the aerobic bioremediation of petroleum hydrocarbons and some non-halogenated organics.